

REMARKS

Claim 4 has been amended. Claims 1-20 remain pending. Claim 4 stands rejected under 35 U.S.C. § 112. Claims 1-20 stand rejected under 35 U.S.C. § 103 as being unpatentable over Maus in view of Hambright, or alternatively, Hambright in view of Maus. These rejections are respectfully traversed.

Claim 4 is rejected under 35 U.S.C. § 112. Per the Examiner's suggestion, the claim has been amended so that "said flow passageways" is now recited. Accordingly, the rejection under 35 U.S.C. §112 should be withdrawn.

The present invention is directed at an apparatus and method for producing molded optical elements. The apparatus includes a first mold unit for defining mold cavities and flow passageways and a second mold unit having a patterned surface for sealing against the first unit. Thus, the apparatus and method of the present invention is capable of producing a molded optical product having a patterned surface without the need to fit a stamper. The patterned surface on the second mold unit may be located on a flat metal puck which is interchangeable to permit the apparatus to produce products having different optical characteristics. See page 12, line 5 - page 13, line 7.

Maus is directed at an apparatus and method for injection compression molding of thermoplastic optical lenses (e.g., eyeglass lenses) and disks (e.g., compact discs, CD-ROMs). The molding technique of Maus consists of four general steps: (a) forming a closed mold cavity; (b) injecting a resin into the cavity; (c) applying a clamping force to the

cavity; and (d) maintaining the clamping force until the resin within the cavity solidifies.

See column 12, line 40 - column 13, line 27. The mold cavities are formed by sets of die inserts (e.g., element 5a' in Figs. 11A and 11B). The die inserts are not patterned and are therefore incapable of forming a patterned surface on the molded product. Thus, if the apparatus of Maus is to produce a molded product having a patterned surface, a stamper must be fit into one of the inserts. This is in contrast to the present invention, which is capable of directly forming a patterned surface on a molded optical product.

Hambright is directed at a method and apparatus for replicating diffractive optical elements using audio/video disc manufacturing equipment. The method of Hambright is illustrated in Figs. 1A, 1B, and 1C. In Fig. 1A, an etch process is applied to a substrate 10. The etching forms the etched substrate 12 of Fig. 1B, which is used to create a mold master 14 having a negative mold pattern. As shown in Fig. 1C, the mold master 14 is used with a mold 16 to create an optical disc 18 having optical patterns corresponding to those that were etched into the substrate 10. See column 3, lines 18-28.

The Office Action alleges that mold master 14 corresponds to a mold element having the desired optical configuration, i.e., corresponding to the claimed patterned metal puck. Applicants respectfully disagree. Hambright is directed at using audio/video disc manufacturing equipment for producing a plurality of optical elements. The mold master 14 illustrated in Figs. 1B and 1C is a part of a stamper, since, for example, compact discs are typically manufactured by an injection molding process using a stamper. Thus, neither

Maus nor Hambright, whether taken alone or in combination, teaches or suggests the use of a patterned mold surface.

Claim 1 recites: "a second mold unit having a mold surface for sealing against said first unit, said mold surface containing a plurality of patterns for molding optical patterns in the optical elements." Maus and Hambright are devoid of any teachings or suggestions regarding a patterned second mold unit capable of molding optical patterns in the optical elements. Claim 1 is therefore allowable over the prior art of record. Claims 2-9 depend from claim 1 and are believed to be allowable over the prior art of record for these reasons and because the combination defined in the claims is not shown or suggested by the cited references.

Claim 10 recites: "a metal puck with a plurality of optical patterns ... locating said metal puck against a mold surface to form mold cavities ... and ... molding optical elements ... such that said optical patterns of said metal puck are formed in said optical elements." Maus and Hambright are devoid of any teachings or suggestions of locating a patterned metal puck against a mold surface to form mold cavities to produce patterned optical elements. Claim 10 is therefore allowable over the prior art of record. Claims 11-16 depend from claim 1 and are believed to be allowable over the prior art of record for these reasons and because the combination defined in the claims is not shown or suggested by the cited references.

Claim 17 as amended recites: "forming a plurality of optical patterns in a single metal puck; locating said metal puck against a mold unit to form mold cavities." Maus and

Hambright are devoid of any teachings or suggestions regarding locating a patterned metal puck with a plurality of optical patterns against a mold surface to form mold cavities.

Claim 17 is therefore allowable over the prior art of record. Claim 18-20 depend from claim 17 and are believed to be allowable over the prior art of record for these reasons and because the combination defined in the claims is not shown or suggested by the cited references.

Finally, please note that the canceled and/or amended claims have been canceled and/or amended in this case solely for the purpose of furthering the prosecution of the present application. Applicant reserves the right to claim the subject matter of the canceled claims, the claims pending prior to this Amendment, and/or the subject matter of other claims embodied in this application, or any continuation, division, CPA, reissue, reexamination or other application. Any amendments made to the application are not made for the purpose of distinguishing the claims over prior art, except as specifically discussed in the Remarks section of this paper.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue.

Dated: December 13, 2000

Respectfully submitted,

By

Christopher S. Chow

Registration No.: 46,493

DICKSTEIN SHAPIRO MORIN &
OSHINSKY LLP

2101 L Street NW

Washington, DC 20037-1526

(202) 785-9700

Attorneys for Applicant